Idaho Health Quality Planning Commission 2008 Report
Draft for Public Comment

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Acknowledgments

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Joe Morris	CEO, Kootenai Medical Center, Coeur d'Alene, Idaho
John Stellmon	President and CEO, Regence BlueShield of Idaho, Boise, Idaho
Rich Rainey	Medical Director, Regence BlueShield of Idaho, Boise, Idaho
Stephen Weeg	Executive Director, Health West, Inc., Pocatello, Idaho

Committee Staff

Patti Campbell	Senior Project Manager, Idaho Department of Health and Welfare
Michael Cannon	Chief Information Officer, Blue Cross of Idaho
LaDonna Larson	Project Manager, Idaho Department of Health and Welfare
Brian Johnson	Project Director, Xenial Technologies, Boise, Idaho
Chris Roberts	Administrative Assistant II, Idaho Department of Health and Welfare

Foreword

This document is submitted to Idaho Health and Welfare Director, Richard Armstrong, to meet the requirements set out in House Bill 738, March, 2006, creating the Idaho Health Quality Planning Commission and directing the Commission to promote improved quality of care and improved health outcomes through investment in health information technology and in patient safety and quality initiatives in the state of Idaho.

For more information about the Idaho Health Quality Planning Commission and its activities and for copies of this report, visit

http://www.idahohde.org/IHQPC.html

Table of Contents

Executive Summary

National leaders and leaders in Idaho recognize that our health care system can improve. The current system is fragmented and paper-based, which limits clinician access to information vital to quality patient care. Idaho's leaders believe that development of a statewide infrastructure to facilitate electronic exchange of health information can improve the quality and reduce the cost of healthcare in Idaho.

To that end, the Health Quality Planning Commission was formed to make recommendations to Idaho's Legislature regarding the development of a uniform, statewide, flexible, and interoperable health data exchange (HDE). Major participants in the effort to develop a health data exchange include hospitals, physician groups, safety net providers, employers, health plans, state government, and consumers.

According to a recent eHealth Initiative survey, there are thirty-two fully operational health information exchanges transmitting data which is being used by healthcare stakeholders. Of those, twenty have developed a sustainable business model and ten of that twenty are expanding their organizations to include more stakeholders. The survey reflected an increase in exchange of clinical data, such as laboratory results and radiology reports. Most exchanges established a non-profit corporation involving multiple stakeholders to support operations. Hospitals, primary care physicians, health plans, and community health clinics are the entities most frequently playing a role in governance.

Challenges for health information exchanges include development of a sustainable business model, securing upfront funding, defining the value that will accrue to users of the exchange, addressing privacy and confidentiality issues, accurate linkage of patient data, and addressing organization and governance issues.

Idaho has several health information technology efforts currently underway including the North Idaho Health Network (NIHN) and the Inland Northwest Health Services (INHS). Both are operational regional health information organizations (RHIOs) facilitating the exchange of data among health care stakeholders in their networks.

Other efforts include use of grant funding by Magic Valley Memorial Hospital in Twin Falls to implement an ambulatory electronic medical records system (EMR) in multiple rural primary and specialist care provider settings and an e-prescribing pilot program implemented in July 2007 by Primary Health in partnership with the Idaho Physicians Network.

Most physician offices are automated to perform practice management functions; yet most continue to operate with paper medical records. Records received via facsimile,

printed from web-based results sites, and handwritten records comprise these paper medical records.

Many of Idaho's hospitals are highly automated. Areas of automation include infrastructure, patient accounting (billing), laboratories, electronic transcription systems and some emerging EMR initiatives. The most significant EMR initiatives exist in the large and metropolitan hospitals with advanced interconnectivity of EMRs in multiple institutions, such as NIHN.

All caregiver sites that have automation have some level of integration with outside entities. The most notable example of integration is passing of electronic claims data from care sites to payers or clearinghouses. Integration of entities using electronic claims data has been facilitated by the adoption of the Health Information Privacy and Portability Act (HIPAA). HIPAA standards provide a common language of interoperability and security standards for data sharing.

As part of the Commission's efforts, research on broadband access in Idaho was conducted. Access to high-speed internet service is uneven across the state. It was determined that Idaho can move forward with health information technology implementation by selecting a system that will allow participation by individuals with a dial-up Internet connection with a minimum speed of 56 kbps.

According to Qualis, Idaho's quality improvement organization (QIO), an estimated eight to twelve percent of Idaho physicians currently use some form of electronic medical records. The national average for EMR adoption is between 25 and 30%. The Commission sought to find a solution that would work equally well for physicians without an EMR and physicians with an EMR.

While health information exchange holds great promise for the realization of dramatic improvements in the quality of health care, any effort must ensure patient privacy and security of health information. The Commission determined that all information exchanges must comply with state and federal regulations as well as conforming to national standards for the secure exchange of information. The Commission's approach to the architecture of the health data exchange will help ensure the security of exchange.

Privacy and security policies have been developed, incorporating best practices to ensure the integrity, security, privacy and confidentiality of an individual's information. The policies require compliance with HIPAA Privacy and Security regulations.

Patients will have the right to control whether or not their information is included in the health data exchange. Patients can choose to "opt-out" of participation in the exchange. Information on the patient's right to opt-out and instructions on how to do

so will be available at participating physicians' offices. Information on patients who do not opt out will be included in the exchange.

The Commission formed sub-committees to research critical areas of development for an exchange. The finance sub-committee was formed to address the financing of the exchange. The security, privacy and policy committee was formed to address policy issues related to privacy and security of health information. The technology committee was formed to identify technology standards and options and to guide the implementation of the exchange. The business operations sub-committee was formed to propose and implement an organization and governance structure for the exchange.

A 501(c)(6) corporation, the Idaho Health Data Exchange (IHDE), was established to develop and implement a health data exchange in Idaho. IHDE is a non-profit corporation; its status as an independent, legally established, entity responsible to a board of directors with members from a broad base of stakeholders will help ensure that its primary commitment is to the common good. Current Commission members comprise the Board of Directors for the IDHE. The IHDE is neither a direct arm of government nor part of any other organization in the state's healthcare environment. It is a true example of a public-private partnership.

The initial cost of development of the IHDE will be supported by contributions from stakeholders as well as funding appropriated by Idaho's legislature. In addition to capital, stakeholders have provided in-kind support to the project. The projected cost for Phase I of the IHDE is $1.6 million. Capital funding for Phase I comes from a legislative appropriation with the remainder of the cost covered by payers and hospitals. Participating hospitals and data sources, such as independent laboratories, will bear the cost of hooking up to the IHDE. Providers accessing the system will be charged a fee for accessing the IHDE. Those fees will be used to pay for IHDE overhead as well as the cost of connecting to the IHDE and costs for software licenses.

Health information exchange can help rural providers from across the spectrum of care better coordinate patient care. The distance between providers, heightened use of referrals and the connections rural providers have to regional health systems contribute to the great need for interoperability across Idaho. The IHDE provides an affordable technological solution to meet these needs that can be used with a dial-up Internet connection.

Based on extensive research, the Idaho Health Data Exchange Corporation identified Axolotl, a company based in San Jose, California, and it's Elysium product suite as the health information exchange solution to connect Idaho's healthcare participants, providing access to patient data when and where it is needed. The Elysium product will allow healthcare communities to securely link and share patient-centric information without compromising data ownership, location, or format.

The health data exchange will be implemented in five phases with the initial phase anticipated to be fully functional by January 2009. Participants in the first phase include two major hospitals, approximately 100 physicians, and two independent data sources, such as a laboratory or imaging center. Full statewide implementation of the exchange is anticipated to be complete by June 2013.

Comprehensive measuring systems will be developed to track IHDE's impact on healthcare quality. Evaluating the IHDE includes monitoring it's use and usability, measuring the quality of improvements in health care delivery and calculating the business benefits from the results of these measurements. IHDE is exploring a partnership with Boise State University's Center for Health Policy to evaluate the IHDE.

Idaho's planned Health Data Exchange is supported by state legislation and Idaho's Governor; it is also a step toward achieving the Bush Administration's goal of developing a nationwide interoperable health information technology infrastructure. It will connect stakeholders, including hospitals, laboratories, pharmacies, physicians, payers, and consumers. It will protect a patient's right to privacy and security of their health information while making healthcare safer, more effective and efficient. It will leverage existing technology infrastructure and be designed for expansion in the future. The Idaho Health Data Exchange model offers significant short and long-term benefits for the community, as it addresses the needs of everyone.

Background

Currently, the U.S. health care system is highly fragmented and paper-based, with critical information about the patient stored in a variety of formats across facilities and settings, including hospitals, laboratories, pharmacies, physician offices, long term care facilities and administrative data systems within health plans. As a result, clinicians often do not have access to comprehensive information about the patient at the point of care.

Leaders in Idaho recognize that a statewide infrastructure to exchange health information electronically will improve the quality and reduce the cost of healthcare in Idaho by:

- Ensuring health information is available at the point of care for all patients
- Reducing medical errors to improve patient safety
- Avoiding duplicative medical procedures
- Improving coordination of care between hospitals, physicians, and other healthcare professionals
- Encouraging greater consumer participation in their personal healthcare decisions
- Enhancing the business environment for both small and large employers and reducing state expenditures by controlling healthcare costs

With these goals in mind, the Idaho Health Quality Planning Commission (HQPC) was formed to make recommendations to the Legislature and the Office of the Governor related to the development of a uniform, statewide, flexible, and interoperable health data exchange (HDE). The Commission has identified exchange of medication history, e-prescribing, and clinical messaging as likely components to be included in Idaho's health data exchange. The Commission also identified the major participants affected by the Idaho health data exchange to include hospitals, physician groups, safety net providers, employers, health plans, state and local government, laboratories, and consumers.

The Commission's blueprint for Idaho's health data exchange includes:

- The organization and governance of Idaho's health data exchange to include core functions, outreach processes and programs, privacy and security policies, legal liability research and risk assessment, enforcement mechanisms, and audit functions of the health information exchange
- Technical design to include the transaction details of Idaho's health data exchange (for retrieval, deposit, or searching of health information), content, and interoperability standards will also be included in the plan
- Consumer and provider engagement to include privacy and security provisions, education, outreach, and standards

- Initial and sustainable funding model to include private donations, state funding, federal funding through grants, or other sources of revenue for sustainability
- Risk mitigation analysis to include continual review and modification of implementation plan
- Performance measures and establishment of mechanisms to evaluate success and accountability
- Research and development of Idaho's health data exchange implementation sites

National Trends in Health Information Technology

On April 27, 2004, the President issued an Executive Order (EO) 13335, Incentives for the Use of Health Information Technology and Establishing the Position of the National Health Information Technology Coordinator announcing his commitment to the use of health information technology (HIT) to reduce medical errors, increase quality and efficiency, and provide better information for consumers and physicians.

In the fall of 2007, the Office of the National Coordinator (ONC) awarded nine contracts to advance the development of a Nationwide Health Information Network (NHIN). NHIN is conceptualized as a "network of networks" connecting state and regional health information exchanges (HIEs) to enable the nationwide exchange of health information. The NHIN trial implementations involve multi-stakeholder organizations and involve testing the secure, non-proprietary exchange of health information. Deliverables from the trial implementation include development of detailed specifications and agreements to support NHIN data exchange.

The eHealth Initiative, an independent, non-profit organization whose mission is to drive improvement in the quality, safety, and efficiency of healthcare through information and information technology, conducts an annual survey of health information exchange at the state, regional and community levels. According to a recent eHealth Initiative survey, there are thirty-two fully operational health information exchanges transmitting data which is being used by healthcare stakeholders. Of those, twenty have developed a sustainable business model and ten of that twenty are expanding their organizations to include more stakeholders (eHealth Survey, 2007). According to the survey, "…the most significant drivers for health information exchange were improving quality (94 percent) and improving patient safety (80 percent)." (eHealth Survey, 2007)

The eHealth 2007 survey reflected an increase in exchange of clinical data from the previous year. Thirty-four percent of respondents are exchanging laboratory data and 32 percent are exchanging data related to outpatient episodes. "Exchange of emergency department episodes, inpatient episodes, outpatient laboratory results, and radiology results are…30 percent, 28 percent, 28 percent, and 26 percent, respectively…" (eHealth Survey, 2007)

While the focus in health information exchange is the data, the eHealth Initiative survey (2007) reports organizations also offer support to clinicians in analyzing office workflows, and by providing implementation guides as well as supporting users through a help desk function.

The majority of respondents to the eHealth Initiative survey (2007) established a legal corporation to support operations. More than two-thirds of those establishing a corporation opted for a non-profit model. In most health information exchange initiatives, multiple stakeholders are participating, with hospitals, primary care physicians, health plans, and community health clinics most frequently playing a role in governance. As far as funding sources, operational initiatives obtained funding mainly from hospitals, physician practices, health plans, and laboratories, with 21% of respondents indicating they received state or local funding as well.

Overall, the survey reflects that health information exchange initiatives across the country are continuing to mature. Challenges faced by initiatives as reported in the survey (eHealth Survey, 2007) include:

- Developing a sustainable business model
- Securing upfront funding
- Defining the value that accrues to users
- Addressing privacy and confidentiality issues
- Accurately linking patient data, and
- Addressing organization and governance issues.

Analysis of Existing Health Information Exchange Technology in Idaho

Current efforts in health information technology in Idaho include:

North Idaho Health Network (NIHN)

NIHN is an operational regional health information organization (RHIO) facilitating the exchange of data among health care stakeholders in five northern Idaho counties. Participating hospitals include:

- Benewah Community Hospital – St. Maries
- Bonner General Hospital – Sandpoint
- Boundary Community Hospital – Bonners Ferry
- Kootenai Medical Center – Coeur d' Alene
- Shoshone Medical Center – Kellogg
- Population of the five counties is approximately 207,000 (U.S. Census Bureau)

Rural Community Partnerships – Electronic Medical Record (EMR) Implementation Project – Twin Falls, Idaho

Grant funding from the Agency for Health Care Research and Quality was provided to Magic Valley Memorial Hospital in Twin Falls to implement an ambulatory EMR in multiple rural primary and specialist care provider settings. The goal was to measure the impact of health information technology on clinical practice, organizational structure, and financial benefits and integrate ambulatory electronic medical record case scenarios into the curricula of the Health Science and Human Services Department to ensure that future healthcare providers have adequate training and exposure to ambulatory EMR technology. The grant period began September 20, 2004 and ended August 31, 2007.

Inland Northwest Health Services (INHS)

INHS is a functional RHIO connecting 32 hospitals in counties in Idaho's panhandle and Washington. INHS RHIO securely stores 2.4 million electronic patient records and facilitates the sharing of these records throughout its network.

e-Prescribing Pilot

Primary Health teamed with the Idaho Physicians Network to implement an e-prescribing pilot program that began in July 2007. The Idaho Physicians Network represents 2,100 doctors across the state. Primary Health picked up more than half of the $2,700 cost per provider to implement the e-prescribing system at a six-physician practice, Capitol City Family Medicine, in Boise.

While discrete health information technology efforts exist across the state, the HQPC commissioned an assessment order to gain a comprehensive picture of the state of health information technology in Idaho. The assessment was designed to gather information on the components of healthcare providers' health information technology systems anticipated to have material impact on data exchange planning.

Use of electronic health data in Idaho

In most care settings, caregivers and care coordinators have some access to electronic medical record information. This information typically comes from tertiary caregivers, payers, commercial laboratories or diagnostic centers. Access is granted and coordinated by the site performing the service or initiating the patient relationship. For example, if specimens are sent to a commercial lab, that lab grants access to the on-line results. Caregiver sites such as physician offices benefit from electronic access to such information regardless of whether the output is to their own electronic medical record, paper-based record, fax, or secure e-mail.

Physician offices

The majority of physician offices are automated to perform practice management functions, which include tracking patient demographics, scheduling and billing (Kelly-Hall, 2007). Some practice management systems also include office accounting and payroll functions. Billing systems often communicate directly with payer systems to exchange claim information.

Internet access in physician offices is unknown, but based upon current growth of Internet use and access in Idaho, it can be assumed that Internet use in physician offices is also growing. However, very few physicians report using the Internet to help manage their day-to-day non-clinical operations like appointment scheduling, billing and patient demographics.

The majority of physician offices with electronic billing systems continue to operate with paper medical records whether or not they have Internet access. These paper medical records are comprised of handwritten documentation, computer-generated information, such as printouts from Internet-based results sites, and facsimile copies of patient records. The solution chosen must integrate into the workflow of paper-based offices.

Hospitals

Many of Idaho's hospitals are highly automated. Areas of automation include infrastructure, patient accounting (billing), some laboratories, electronic transcription systems and some emerging EMR initiatives. The most significant EMR initiatives exist in the large and metropolitan hospitals with advanced interconnectivity of EMRs in multiple institutions, most notably in northern Idaho. Northern Idaho, Inland Health, St. Luke's Health System, payers, and Saint Alphonsus-affiliated organizations each have significant electronic interfaces with external entities. The adoption rate of electronic medical record systems by smaller hospitals remains low.

Prevalent vendors

Although there are many different electronic health data products used in Idaho, there are several products used by more than one Idaho provider. Most notably, there are multiple hospitals using the same vendor for their health information systems (HIS), which automate patient management, billing, admission, discharges, transfers, and some interfaces with external systems and patient demographics. In northern Idaho, NIHN and hospital sites, as well as several sites within the St. Luke's Health System use Meditech as their HIS vendor. Many of Idaho's rural hospitals use Dairyland Systems, and McKesson systems are used at Saint Alphonsus and its affiliates.

Practice management systems in physician offices and clinics vary widely. Micromed, E-clinical works and Logician seem to have some critical mass in physician office settings. However, this market is highly volatile with many vendors routinely entering and exiting the market.

Payers

Blue Cross of Idaho and Regence BlueShield of Idaho use Trizetto software for claims and e-health strategies. Although both companies use the same vendor, unique design assumptions and unique strategies have created unique implementations. Idaho Medicaid is currently in the design and development phase of replacement of its Medicaid Management Information System. The vendor for the base system is Unisys.

Electronic data standards

Although there is a moderate degree of commonality in vendor usage in all settings, each implementation is different. Ongoing maintenance, upgrades and conversions occur frequently, further highlighting the state of flux in health data management and the challenges to any efforts to design and implement a health data exchange. Identification and utilization of existing technology standards will be critical to the success of Idaho's efforts.

All caregiver sites that have automation have some level of integration with outside entities. The most notable example of integration is passing of electronic claims data from care sites to payers or clearinghouses. Integration of entities using electronic claims data has been facilitated by the adoption of the Health Information Privacy and Portability Act (HIPAA). HIPAA standards provide a common language of interoperability and security standards for data sharing. Most financial transactions for billing and payment meet these standards. Sites not using HIPAA standards are in conversion efforts.

In clinical settings, more complex communication of data is necessary. Health Level 7 (HL-7) is a common standard used by all of the Idaho sites currently integrating clinical information with outside parties. HL-7 provides a framework for common language, transactions, queries and data structures. Similar to all spoken languages, HL-7 has many dialects. Integration of systems into any health data exchange must accommodate these differences.

To facilitate integration of HL-7 dialects, many sites use an interface engine. The interface engine takes each transaction, identifies the sending and receiving systems, adjusts for specific idiosyncrasies of vendors, ships and validates the receipt of the data. The use of interface engines and HL-7 in Idaho is the largest area of compatibility and the greatest opportunity for successful integration in the creation of an Idaho health data exchange.

In a majority of sites responding to a survey conducted for the Health Quality Planning Commission, a common vendor is used for interface engines. Common vendors include Quovadx, Sun or Meditech. All of these integration engines provide some level of interoperability with each other.

Areas of electronic compatibility

Idaho health information technology strengths include private infrastructure, HIS, and billing systems. Commonality in integration strategies and vendors will help to provide a successful framework for any proposed data exchange in Idaho. Where interface engines do not exist but where electronic data must be exchanged, the proposed solution must provide those services for those sites. In general, the Idaho exchange must accommodate HL-7 interfaces, HIPAA transactions and other emerging standards. Use of existing standards will minimize the cost of development and maintenance of any proposed exchange.

Analysis of Feasibility

To determine what type of electronic health record or health information exchange would best suit health system stakeholders in Idaho, the Commission undertook a strategic planning process comprising five major components:

- Member education,
- Assessment of members' values,
- Assessment of existing HIT investment,
- Modeling, and
- Detailed planning.

This strategic planning methodology was utilized to ensure that the technology planning was values driven. Barriers to implementation were identified and explored. Trust, funding, technological readiness, and privacy and security issues were cited as the most crucial challenges.

Key Stakeholders

Commission members established trust and a good working relationship as evidenced by competitors sitting down together to agree to share data, and community stakeholders being willing to collaborate. Trust was fostered out of creating a shared vision among partners and is being continued through the creation of transparent governance structure, and fair and equitable leadership. Understanding the value proposition from different stakeholder perspectives is central to driving participation and fostering collaboration in the complex relationships that form health information exchanges. Key stakeholders affected by a health information technology system include:

- Consumers
- Providers
- Pharmacies
- Hospitals
- Payers, private and public
- Employers
- Public Health
- Quality Improvement Organizations

Idaho's major stakeholders were at the table during the planning stages. The next step was to determine if Idaho's technological infrastructure could support a web-based health information technology system.

Technological Infrastructure

Research was conducted on broadband access in Idaho. A broadband map was developed and is included in Appendix A. The broadband map identifies the distribution of Medicaid providers overlaid with the broadband access in the geographic area. The broadband access represented on the map symbolizes connectivity that is capable of sending multiple medical imaging files simultaneously (i.e. X-Rays, CT Scans, MRI's, etc.).

Sufficient connectivity for the purpose of health information exchange is defined as a minimum speed of 1.5 megabits per second. If DSL or cable were available in the area, it had to meet this criterion.

Satellite access is available for anyone with a clear view of the southern sky. However, this service is currently considered as inadequate to fulfill the speed requirements that are necessary to send multiple medical imaging documents and is not represented on the map. Maximum speeds were 1024 Kilobits per second and prices range from $1000.00 to $6,000.00 for installation and $150.00 to $1,000.00 per month for service.

The map reflects that many health care providers in rural areas do not have imaging capabilities and will not be transmitting or receiving large data files on a regular basis.

Region 1 (Boundary, Bonner, Kootenai, Benewah, Shoshone counties) - This region is well connected through the Kootenai Medical Center. The center provides high speed internet service to 95% of the clinics and other healthcare facilities in the region. They also have all of the Federally Qualified Health Centers connected. They are currently using 5 to 10 percent of their capability at the busiest time of day. This healthcare network has been in the top 25 most wired in the U.S. for the last three

years. They share health data within the five counties and all of Eastern Washington on a regular basis.

Region 2 (Latah, Clearwater, Nez Perce, Lewis, Idaho counties) – This region has limited connectivity. Gritman Medical Center in Latah County is well connected and has a number of local clinics on their network. They have no problems with sending imaging files. The four other counties are connected by the Clearwater Valley Hospitals and Clinics network. While they can send imaging files, speeds will not be optimal if there are a large number of simultaneous transmissions. Verizon is the provider and has no plans to expand services in these areas until 2009.

Region 3 (Adams, Canyon, Gem, Owyhee, Payette, Washington counties) – This region has sufficient connectivity in some areas with no connectivity in others. Adams, Canyon, Gem and Payette have sufficient connectivity except in very remote spots. Access is through the Syringa Network "middle mile". This network can allow speeds up to 1 gigabit per second which is far superior to most connections. The Owyhee county region only has connectivity in the Homedale-Marsing area. This is provided through cable and speeds may not be optimal if a number of large imaging files are transmitted simultaneously.

Region 4 (Ada, Boise, Elmore, Valley counties) – This region has good access in most areas. Ada County is very well connected through various providers and currently transmits imaging data on a regular basis with no problems. Valley County is well connected through the Syringa Network and will have no problems with transmissions. Boise County has connectivity in the southern region through Qwest. Transmission speeds will be sufficient. They are lacking connectivity in all other areas of the county. Elmore County has good connectivity in the Mountain Home area through the Syringa network. Glenns Ferry has good connectivity through Qwest. The other areas of the county do not have any healthcare providers.

Region 5 (Blaine, Camas, Cassia, Gooding, Jerome, Lincoln, Minidoka, Twin Falls counties) – This region has sufficient connectivity in most areas with very small pockets with no access and one larger rural area in Lincoln county with no access. Most access is provided by Syringa Network which is adequate for transmission of imaging data. Cassia Regional Medical Center and some smaller providers in Cassia County are connected through Intermountain Health Care in Utah. They have sufficient connectivity.

Region 6 (Bannock, Bear Lake, Bingham, Caribou, Franklin, Oneida, Power counties) – Areas of this region are well connected through the Syringa network. Oneida and Power counties have sufficient connectivity for imaging data transmission. Bear Lake County has sufficient access in one very small area only. Franklin County does not have sufficient connectivity for transmitting imaging data. Caribou and Minidoka Counties have sufficient connectivity in the populated areas through Syringa Network.

The rural western region of Caribou County does not have sufficient access. Bingham County has sufficient access through Qwest and Cable One in the populated areas of the county but no access in the southern less populated areas.

Region 7 (Bonneville, Butte, Clark, Custer, Fremont, Jefferson, Lemhi, Madison, Teton counties) – Bonneville and Custer Counties have sufficient access in most areas through Syringa Network. One small pocket in the eastern area of Bonneville County does not have access. Jefferson County has one very small pocket of access. Clark, Fremont, Butte, and Teton counties are well connected through the Syringa Network. Madison County has sufficient access through cable and Qwest in most areas. Lemhi County only has sufficient connectivity in the Salmon area through Syringa Network.

Access to high-speed internet service is uneven across the state. The broadband map clearly reflects that if rural providers are going to have access to images stored in Picture Archiving and Communication Systems (PACS), Idaho's connectivity must be improved. There are some efforts underway to improve the situation, but Idaho can move forward with health information technology implementation by selecting a system that will allow participation by individuals with a dial-up Internet connection with a minimum speed of 56 kbps.

Rate of Electronic Medical Record Adoption

According to Qualis Health, Idaho's quality improvement organization, Idaho's medical community has been slow to adopt electronic medical records technology. They estimate only eight to twelve percent of physicians in Idaho currently use some form of electronic medical records, which is less than the national average of 25% to 30%. The Commission sought to select a solution that would honor existing electronic health record systems and investments, and will incorporate existing electronic health record technology into the health information exchange. Leveraging these existing systems will also reduce cost and training requirements for some participants. It will also eliminate the need for extensive technological infrastructure additions to provider's current systems.

Implementation Considerations

The legal and organizational matters related to privacy and security must be addressed in the development and implementation of a health data exchange. A thorough analysis of state statute confirmed that no changes to state statute are required to allow implementation of a health information exchange in Idaho. While health information exchange holds great promise for realizing dramatic improvements in the quality of healthcare, many believe movement to electronic records will result in greater risk to patient privacy. The Commission acknowledges the potential risk and has committed to ensuring that exchanges of health information technology shall

comply with all state and federal regulations as well as conform to national standards for the secure exchange of information.

The Commission determined that the architecture for the exchange was one way to ensure the privacy and security of information. Patient health information will be stored where it was created. Lab results for a patient will be securely stored on a server for the lab that ran the test; chart notes created by a physician will be stored in a database dedicated to the physician's office. Discharge summaries for a patient will be stored on a server dedicated to the hospital the patient stayed at. When a physician needs the information to provide care to the patient, he will enter a search into the exchange and based on the information in the master patient index (MPI) and pointers to the patient data, the information will be gathered from those sources. This architecture makes the exchange less vulnerable to a large-scale breach. See Figure 1 for a graphic of proposed data exchange architecture.

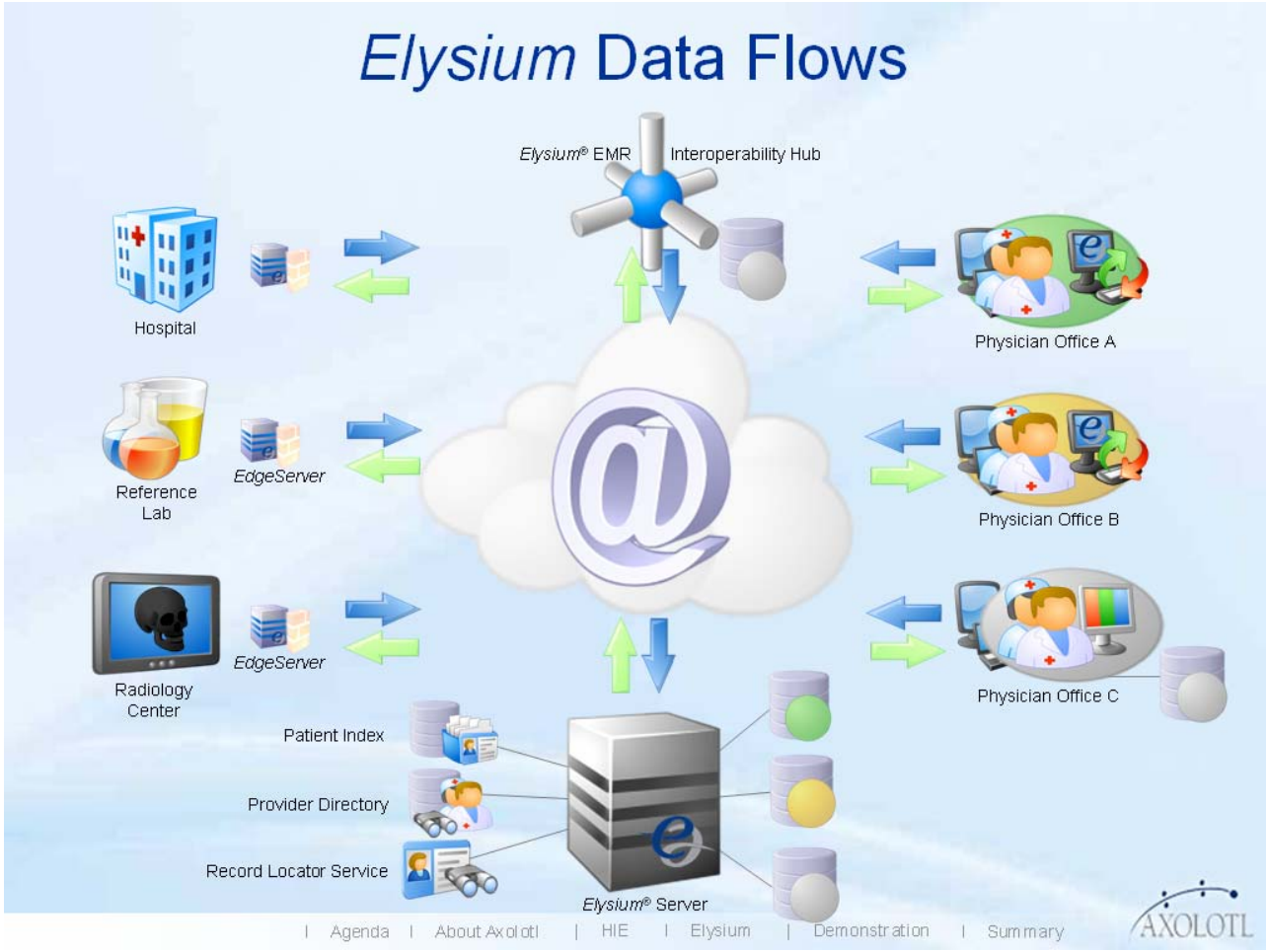

Figure 1 - Data Exchange Architecture

The Commission determined that establishment of privacy and security policies using best practices is essential to protect the integrity and confidentiality of an individual's information. Proposed privacy and security policies specify that all participants in the health data exchange must comply with HIPAA regulations related to the access and use of protected health information. This means that individuals using the exchange must limit queries to the minimum amount of information that is necessary for them to do what they must do and specifies that only those individuals who have a need to use the exchange for business purposes will be granted access.

Access to the exchange will be granted on a case-by-case basis and the person's duties will dictate what type of access he or she will be granted. Individuals will not be able to share their log in or passwords. The assignment of individual log in identities and passwords will allow the exchange to audit individual activity.

The Commission believes that patients should have the right to control their health information. To that end, the exchange privacy policies provide for the patient's right to determine whether or not their health information will be included in the exchange. Information on the patient's right to opt-out of participation in the exchange will be available to patients at their health care provider's office along with information on how to complete a request to opt-out. If a patient does not choose to opt-out of the exchange, his or her information will be included in the exchange.

Organizational and Governance Structure

Four sub-committees were created by the Commission to research and develop pertinent areas crucial to the development and implementation of a health data exchange in Idaho.

The Finance Sub-Committee was formed to identify short term and long-range financial needs, and develop budgets and financial strategies to promote engagement and maximize long-term sustainability.

The Security, Privacy and Policy Sub-Committee was formed to analyze state law related to health data exchange and develop security and privacy policies consistent with state and federal mandates laws to guide the use of Idaho's health data exchange.

The Technology Standards Sub-Committee was formed to ensure the identified solution met national standards for interoperability and security as well as to provide oversight on the technical implementation.

The Business Operations Sub-Committee was formed to develop a business case for health data exchange in Idaho, and establish the operational and governance structure for Idaho's health data exchange, including operational policies.

To implement the health data exchange in Idaho, a 501(c)(6) corporation has been established, called the Idaho Health Data Exchange (IHDE). The IHDE became a fully functioning non-profit corporation registered with the State of Idaho on January 29, 2008. Its status as an independent, legally established, entity responsible to a board of directors with members from a broad base of stakeholders will help ensure that its primary commitment is to the common good. The IHDE is neither a direct arm of government nor part of any other organization in the state's health care environment. It is a true example of a public-private partnership.

A board of directors that consist of no fewer than five and no more than fifteen voting members governs the Corporation. The board officers are elected by the board annually and will consist of a chair, vice chair, secretary, and treasurer. The current officers are Richard Compton, Chair, Julie Foote M.D., Vice-chair, and Richard Armstrong, Secretary/Treasurer. The initial directors will serve for a term of three years and were nominated by the Commission. Subsequent directors can serve for one, two, or three years and will be elected to the board by the membership at the annual meeting. An executive director will be hired by the board of directors and will be responsible for all operations. Additional staff may be hired at the discretion of the executive director. The Articles of Incorporation and by-laws are attached in Appendix B.

Business Plan

Creating a sustainable business model for funding has been the biggest challenge for existing and developing state level health information exchanges. The IHDE will be implemented in phases over a five year period. The initial phase will involve connecting two hospitals and up to 100 physicians to the IHDE. Phase Two of the plan will connect an additional eight hospitals and 480 physicians. This phased approach will continue each year with a goal of connecting 38 hospitals and 1,500 physicians by year five.

The initial cost of development will be supported by community contributions from stakeholders as well as funding appropriated by Idaho's legislature making this a public/private partnership. In addition to capital, stakeholders have committed to providing in-kind support. The projected cost for Phase I of the IHDE is $1.6 million. Capital funding for Phase I of the IHDE is a 60/40 split between payers and hospitals in addition to the legislative appropriation of $350,000. In-kind contributions for the initial phase are anticipated to be approximately $500,000. Participating hospitals will bear the cost of integration with the IHDE. Providers accessing the system will be charged a fee for that access to cover connection and software licensure costs, and IHDE overhead. Idaho's payers will continue to contribute funding to the effort through the final phase of implementation.

Utilization will drive revenue for the IHDE. Using existing user interfaces provided by hospital and existing EMRs will mitigate to some extent the need for in office support.

Staff will ramp up as needed the first year and will include hiring an executive director. It is anticipated that additional staffing including an administrative professional and technical trainers will be hired. In-kind contributions will be utilized as needed for legal and other specialized services, office space, and office infrastructure.

Rural Provisions

Twenty seven of Idaho's hospitals are located in rural areas (North Carolina Rural Health Research and Policy Analysis Center, 2007). The state has 26 hospitals currently identified as Critical Access Hospitals. There are 44 Rural Health Clinics in Idaho, and 10 Federally Qualified Health Centers provide services at 45 sites in the state. Health information exchange offers providers the ability to help disparate rural providers from across the spectrum of care to better coordinate patient care. The concept of interconnecting clinicians is especially pertinent for rural communities. The distance between providers, heightened use of referrals and the connections rural providers have to other health systems regionally all contribute to the great need for interoperability within and across regions.

The IHDE provides a technological solution to meet these needs that is not cost prohibitive. To access the IHDE, the rural provider needs the following:

- A personal computer with a Pentium processor, or similar
- Microsoft Windows 2000, Windows XP or Windows NT 4.0 operating system
- A color computer monitor that supports at least 256 colors and at least 800- by 600-pixel resolution
- Internet connection (at least 56 kbps)
- Microsoft Internet Explorer 5 or higher
- A Windows supported printer.

To help ensure small rural practices are successful in their adoption of the health data exchange technology, IHDE will actively partner with Qualis, who has many resources aimed at assisting Idaho physicians in implementation of electronic medical records and other health information technology.

Technology System

As part of the planning process, research was conducted to determine what functionality would offer the most value for Idaho's health care stakeholders. Many other health information exchange efforts involved making payer claims data available through a web portal. These efforts were not as successful as initially

hoped because they required a practitioner to "break" his workflow to go out and inquire on a patient. The Commission sought to provide a system that was robust enough to make the providers want to use it.

Extensive research into health information or data exchanges across the nation was carried out. Based on that research, a short list of vendors was compiled and price quotes for functionality requested. Based on cost information provided by the vendors, a single vendor, Axolotl, was chosen by the Idaho Health Data Exchange Corporation to provide the technological infrastructure for the IHDE. The product chosen is a health information exchange solution to connect all community healthcare participants, allowing access to patient data when and where it is needed.

The product enables healthcare communities to securely link and share patient-centric information without compromising data ownership, location, or format. Relevant information, from multiple sources, is collected in real time and sorted in an organized manner for efficient data management and access.

The product is not an electronic medical record system, (EMR); rather it is designed to work side by side with existing EMRs and has been labeled an EMR Lite by the industry. The product provides the ability to receive and send clinical information with colleagues around the community in an email paradigm. It enables custom tailored workflow and efficiency tools so practices can use the tool instead of current paper and fax systems. When fully adopted, a practice can go paperless with their hospital, radiology and lab result suppliers, as the system can build an electronic chart for their patients.

The product comes with a prescription writer, referrals, longitudinal labs (comparison of laboratory results over time), and trending (analysis of multiple indicators, such as white blood cell count, hemoglobin level, platelet count, and blood glucose level), auto processing, inbox management and a number of other features. It enables options for integrated dictation/transcription as an option, as well as lab and radiology ordering. This system will meet the needs of Idaho in developing a functional health data exchange.

Timeline

It is the goal of the Corporation that the Phase I Rollout be fully functional by January 1, 2009 with 2 hospitals and 100 physicians connected to the IHDE. The high-level timeline for Phase I includes:

- Implementation planning with vendor and sub-teams: May 2008
- Phase I implementation to begin: October 2008
- Implementation all year one sites: January 1, 2009

Subsequent phases will be rolled out and fully functional each year following Phase I, adding additional hospitals and physicians according to the following timeline:

- Phase II: 8 hospitals + 480 physicians, June 2010
- Phase III: 15 hospitals + 750 physicians, June 2011
- Phase IV: 26 hospitals + 1125 physicians, June 2012
- Phase V: 38 hospitals + 1500 physicians, June 2013

Evaluation Plan

In order to assess the impact of health information technology and health information exchange on quality, safety, efficiency, and the value of such efforts for various stakeholders, comprehensive measuring systems will be developed to track quality improvements achieved by the IHDE. This will be done by creating an evaluation plan to make comparisons and to set required baselines, benchmarks, metrics, and survey elements.

The evaluation plan will include monitoring use and usability, measuring the quality of improvements in health care delivery, and calculating the business benefits from the results of these measurements. Areas of focus will be patient outcomes, quality of care, drug safety, and improvement in physician workflow. Furthermore, IHDE members will also be able to create measurement protocols of their own, to track data important to them. As the IHDE evolves, measuring systems can be changed to suit current needs. The IHDE is exploring a partnership with Boise State University's Center for Health Policy to evaluate the IHDE.

Conclusion

Many of Idaho's smaller communities lack health information technology systems, in part due to the cost of such systems. There is tremendous opportunity to improve the quality of care and patient safety in these communities through their participation in Idaho's health data exchange. The IHDE offers an entry into health information technology at a reasonable cost for providers who have not yet implemented a system. At the same time, IHDE allows providers who have made investments in a system to get more from their system by connecting them to their peers and giving them a single point of access to test results.

The exchange of health information is critical to improving quality of care and patient safety in Idaho. According to the Agency for Healthcare Quality Research's 2007 National Healthcare Quality Report, Idaho's overall healthcare quality is average compared to all states. Idaho's performance is worse than average on several measures including:

- Percent of adults age 40 and over with diabetes who had a retinal eye examination in the past year;

- Percent of adults age 40 and over with diabetes who had a foot examination in the past year;
- Percent of adults age 18 and over who had their blood cholesterol checked within the preceding 5 years;
- Percent of adults age 65 and over who ever received a pneumococcal vaccination.

There is room for improvement in Idaho's quality of care and the IHDE can help. It gives health care providers a comprehensive snapshot of patient information at the point of care improving the providers' ability to deliver quality care accurately and efficiently.

It offers the potential to improve patient safety as well. Nationally, prescription medication errors result in the death of more than 7,000 Americans each year (Kohn, Corrigan & Donaldson, 1999); that translates to about 34 Idahoans each year. Sixty percent of preventable medication errors occur at the prescribing and transcribing stages (Just, 2001). In a presentation to the Commission, William L. Jonakin, M.D., President of Idaho Physicians Network, estimated that in the pilot about 11% of prescriptions written result in a callback from the pharmacy to the prescriber to resolve issues related to scrip legibility and interpretation, incorrect medicine dosing, drug interactions, and allergy interactions. IHDE's e-prescribing function will provide drug interaction and allergy checking as well as resolving the legibility issue, which can improve patient safety. The cost of drug-related morbidity and mortality is estimated at more than $77 billion per year (Kohn, et al. 1999).

According to the Centers for Medicare & Medicaid Services, annual health care spending in the United States is expected to rise to $2.9 trillion by the end of 2008. Less than five percent of that amount will be spent on health information technology. Health information exchange can improve the quality of care while reducing its costs. There is increasing recognition that health information technology and electronic connectivity across healthcare organizations and among healthcare providers plays a key role in addressing the country's numerous healthcare challenges.

Idaho's planned Health Data Exchange is supported by state legislation and Idaho's Governor; it is also a step toward achieving the Bush Administration's goal of developing a nationwide interoperable health information technology infrastructure. The Idaho Health Data Exchange will build on a collaborative care model that includes an interoperability platform able to connect disparate systems. It will connect all stakeholders, including, but not limited to, hospitals, laboratories, pharmacies, physicians, payers, and consumers. It will protect a patient's right to privacy and security of their health information while making healthcare safer, more effective and efficient. It will recognize and leverage all appropriate existing technology infrastructures and be designed for expansion in the future. The Idaho Health Data Exchange model offers significant short and long-term benefits for the community.

Today when a patient visits a physician's office for a routine complaint, such as sinus pain, the patient's paper record must be physically retrieved. Those records can be misplaced or simply lost. This can leave the healthcare provider with a potentially incomplete picture of the patient's medical history and medications the patient may currently be taking. This information can be requested from the patient, but most patients do not possess total recall of their medical history and recall of that information may be made more difficult by how the patient is feeling.

Something as simple as having a physician recommend that a patient take a non-steroidal anti-inflammatory drug (NSAID), like aspirin, ibuprofen, or naproxen, for pain or swelling, can have unintended consequences if that patient is on a blood pressure medication or heart medicine and the physician does not know it. The NSAID can reduce the blood-pressure lowering effects of the blood pressure medication or cause there to be too much of the heart medicine in the patient's body.

With the IHDE, the physician will be able to immediately access the most up-to-date information about the patient presenting before them and use that information in treating the patient. Such information will improve safety and patient outcomes, which is a benefit for the physician and the patient.

Glossary of Terms

Electronic Health Record (EHR) - A computer-accessible, interoperable resource of clinical and administrative information pertinent to the health of an individual. Information drawn from multiple clinical and administrative sources is used primarily by a broad spectrum of clinical personnel involved in the individual's care, enabling them to deliver and coordinate care and promote wellness (Alliance, 2008b, p 9).

Electronic Medical Record (EMR) - A computer-accessible resource of medical and administrative information available on an individual collected from and accessible by providers involved in the individual's care within a single care setting (Alliance, 2008b. p. 8).

Health Data Exchange (HDE) – Also known as a health information exchange. The electronic movement of any and all health-related data according to an agreed-upon set of interoperability standards, processes and activities across non-affiliated organizations in a manner that protects the privacy and security of that data; and the entity that organizes and takes responsibility for the process (Alliance, 2008b, p. 16).

Interoperability - In the healthcare context, it is the ability of different information technology systems and software applications to communicate, to exchange data accurately, effectively and consistently, and to use the information that has been exchanged (Alliance, 2008a).

Office of the National Coordinator of Health Information Technology (ONC) – An office of Health and Human Services created by a Presidential Executive Order in 2004 to provide counsel to the Secretary of Health and Human Services and Departmental leadership for the development and nationwide implementation of an interoperable health information technology infrastructure. ONC also provides management of and logistical support for the American Health Information Community (HHS, 2008).

Picture Archiving and Communication Systems (PACS) - A digital system for the acquisition, storage, transmission and display of images from various sources, including X-ray, CT, MRI, and ultrasound (CTEC, 2008).

Regional Health Information Organization (RHIO) - A multi-stakeholder governance entity that convenes non-affiliated health and healthcare-related providers and the beneficiaries they serve, for the purpose of improving health care for the communities in which it operates. It takes responsibility for the processes that enable the electronic exchange of interoperable health information within a defined contiguous geographic area (Alliance, 2008b, p. 18).

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The National Alliance for Health Information Technology, 2008. What is interoperability?, downloaded April 30, 2008 from http://www.nahit.org/cms/index.php?option=com_content&task=view&id=186&Itemid=195

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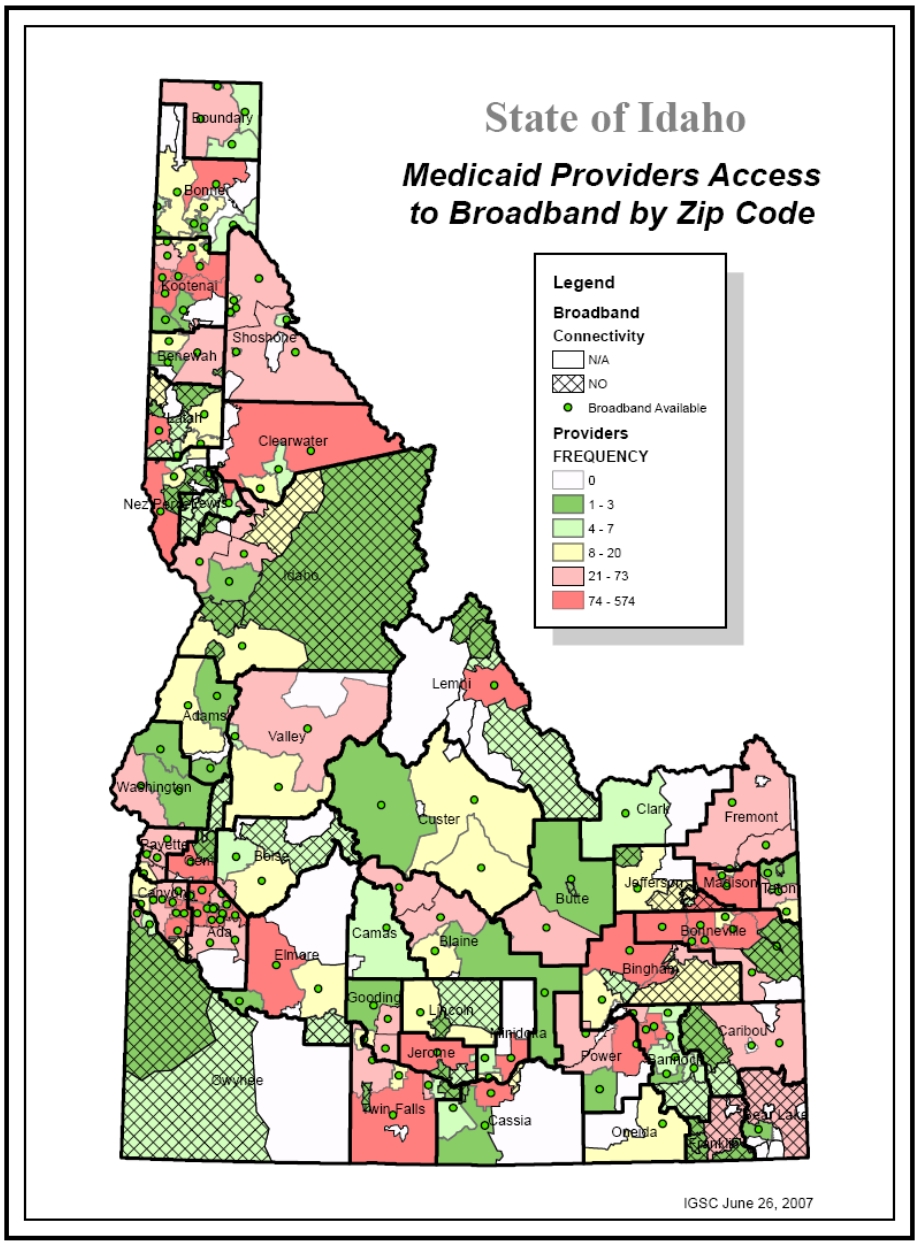
Appendix A – Broadband Map



Appendix B – IHDE Articles of Incorporation and By Laws

NONPROFIT
ARTICLES OF INCORPORATION
FOR THE
IDAHO HEALTH DATA EXCHANGE, INC

The undersigned individual, acting as incorporator under the Idaho Nonprofit Corporation Act, adopts the following Articles of Incorporation.

ARTICLE I

The name of the corporation is the Idaho Health Data Exchange, INC.

ARTICLE II

The corporation is a Public Benefit Corporation.

ARTICLE III

The corporation is organized and shall be operated exclusively for the promotion of common business interests permitted under Section 501(c)(6) of the Internal Revenue Code of 1986, as amended. Specifically, the corporation will invest in health information technology enabling health data exchange for all Idahoans in support of higher quality care and lower costs.

ARTICLE IV

Notwithstanding any other provisions of these Articles of Incorporation, the corporation shall not carry on any activities not permitted to be carried on (a) by a corporation exempt from federal income taxation under Section 501 (c)(6) of the Internal Revenue Code of 1986, as amended, or corresponding provisions of any future federal tax laws. No part of the net earnings of the corporation shall inure to the benefit of any shareholder, individual or member. No substantial part of the activities of the corporation shall be on propaganda, or otherwise attempting to influence legislation, except as may be permitted under Sections 501(c)(6) and 501 (h) of the Internal Revenue Code of 1986, as amended, or the corresponding provisions of any future federal tax laws, and the corporation shall not participate in, or intervene in (including the publishing of statements), any political campaign on behalf of or in opposition to any candidate for public office.

ARTICLE V

Upon dissolution or final liquidation, after payment or provision for payment of all liabilities of the corporation, the remaining assets of the corporation shall be distributed to such other organizations or organizations that are described in Sections 501(c)(6) and 170 (b)(1)(a) of the Internal Revenue Code of 1986, and amended, or the corresponding provisions of any future federal tax laws, for the purposes of the engagement of technology and clinical data exchange in the delivery of health care services to improve the quality of life for Idahoans.

ARTICLE VI

The corporation will have voting members, as that term is defined in the Idaho Nonprofit Corporation Act. The criteria and procedures for admission to membership, and the rights and obligations of members shall be set forth in the corporation's bylaws.

ARTICLE VII

The board of directors shall consist of no fewer than five (5) or more than fifteen (15) voting members. The names and addresses of the corporation's initial directors are:

Dick Compton, Senator
P.O. Box 1738
Coeur d' Alene, ID 83816

Richard Armstrong, Director
Dept. of Health and Welfare
P.O. Box 83720
Boise, ID 83720-0036

Sandra Bruce, President & CEO
St. Alphonsus
1055 N. Curtis Rd.
Boise, ID 83706

Scott Carrell, Manager
Idaho Power
1211 W. Idaho St.
Boise, ID 83702

Ed Dahlberg, President & CEO
St. Luke's Health System
420 W. Idaho
Boise, ID 83702

Zelda Geyer-Sylvia, EVP
Blue Cross of Idaho
P.O. Box 7408
Boise, ID 83707

John Eck, M.D.
Center for Lifetime Health
188 W. Hulls Ridge Court
Boise, Idaho 83703

Julie Foote, M.D.

Treasure Valley Endocrinology
900 N. Liberty, Suite 201
Boise, ID 83704

Roger Hefflinger, Pharm D, Associate
Professor with ISU College of Pharmacy
c/o Family Medicine Residency
777 N. Raymond
Boise, ID 83704

Casey Meza, CEO
Saint Mary's Hospital & Clinics
P.O. Box 137
Cottonwood, ID 83522
Joe Morris, CEO
Kootenai Medical Center
2003 Lincoln Way
Coeur d'Alene ID 83814

Janice Forrester, Director
Regence BlueShield of Idaho
PO Box 2560
Boise, ID 83701

Stephen Weeg, Executive Director
Health West Inc.
845 W. Center St., Ste. 202
Pocatello, ID 83204

Articles of Incorporation, Idaho Health Network

The incorporator has obtained the consent of all directors named to serve as the initial directors. All directors of the corporation, other than the initial directors, shall be elected at the time, in the manner, and for the terms to be set forth in the corporation's bylaws.

ARTICLE VIII

These Articles of Incorporation may be amended or repealed, and new Articles adopted, by the Board of Directors by an affirmative vote of two-thirds of the directors then in office. Any amendments or new Articles adopted by the Board of Directors shall not change the purpose and intent of the corporation as described in Article III of these Articles. Amendments to these Articles of Incorporation must be proposed in one meeting and acted on in a subsequent Board meeting that occurs no sooner than fifteen (15) working days after the meeting in which an amendment is proposed. Each director shall be given at least ten (10) days notice of the place, date, and time of the meetings at which a proposed amendment will be considered. The notice shall state that one of the purposes of the meeting is to consider a proposed amendment to the Articles of Incorporation and shall contain a copy of any proposed amendments.

ARTICLE IX

No director or officer shall have any personal liability to the corporation for monetary damages for conduct as a director or officer, provided that this provision shall not be deemed to eliminate or limit the liability of a director or officer for any act or omission for which elimination of liability is not permitted under the Idaho Nonprofit Corporation Act.

ARTICLE X

The corporation shall indemnify to the fullest extent permitted by the Idaho Nonprofit Corporation Act any person who is made, or threatened to be made, a party to an action suit, or proceeding, whether civil, criminal, administrative, investigative or otherwise by reason of the fact that the person is or was a director or officer of the corporation. The right to and amount of indemnification shall be determined in accordance with the provisions of the Idaho Nonprofit Corporation Act in effect at the time of the determination.

ARTICLE XI

The address of the corporation's initial registered office and the name of the corporation's initial registered agent is: Dr. Julie Foote, 900 N. Liberty, Suite 201 Boise, Idaho 83704

ARTICLE XII

The name and address of the incorporator is: Richard Armstrong, P.O. Box 6978 Boise, Idaho 83707

ARTICLE XIII

The mailing address of the corporation is: P.O. Box 6978 Boise, Idaho 83707

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Dated Incorporator

BYLAWS
OF
IDAHO HEALTH DATA EXCHANGE, INC

SECTION 1
OFFICES

The Corporation shall be principally located at P.O. Box 83720, Boise, Idaho 83720-0036 or such other place as the Board of Directors may designate. The Corporation may have such other offices, either inside or outside the State of Idaho, as the Board may designate from time to time.

SECTION 2
MEMBERS

2.01 Members: Membership in the Corporation is open to subscribers to application and key supporting organizations.

2.02 Membership Classes and Fees: The Board of Directors will determine classes of membership and annual membership fees.

2.03 Meetings: An annual meeting of the Corporation shall be held during the fourth quarter of each year at a location within the State of Idaho at a date and time to be determined by the Board. Any or all of the members may participate in a meeting by the use of any means of communication by which all members participating may simultaneously hear each other during the meeting. A member participating in a meeting by this means is deemed to be present in person at the meeting.

2.04 Action without Meeting: An action required or permitted to be taken at a member meeting may be taken without a meeting if the action is taken by no less than 80% of member consent. The action taken shall be evidenced by written consent describing the action taken, signed by each member, and included in the minutes or filed with the corporate records reflecting the action taken. Action taken under this section is effective when the last member signs the consent, unless the consent specifies an effective date. A consent under this section has the effect of a meeting vote and will be described as such in any document.

2.05 Notice of Meeting: The Corporation shall notify members by first class or registered mail of the place, date, and time of each meeting of members no fewer than ten (10) nor more than sixty (60) days before the meeting date. Notice of an annual or regular meeting shall include a description of any matters that will be brought before the members during the meeting.

2.06 Quorum and Voting: A quorum of members shall consist of the majority of the number of members on record with the Corporation immediately before the meeting begins. Member action shall require a majority vote of the members at a meeting at which a quorum is present.

2.07 Directors. Members shall elect the directors of the Corporation, and shall ratify the removal of any director removed by action of the Board under Section 3.

SECTION 3
DIRECTORS

3.01 Powers: All Corporate powers shall be exercised by or under the authority of a Board of Directors, hereinafter the "Board."

3.02 Number of Directors: The Board shall consist of no fewer than five (5) or more than fifteen (15) voting members, hereinafter "directors". Directors shall be elected to the board by the membership at the annual meeting.

3.03 Appointment and Tenure of Office: A director shall serve a term of three one (1) year, two (2) years, or three (3) years to be negotiated in advance of accepting the position, except the initial term of all directors will be three (3) years. At the expiration of a director's term, the director may be re-elected.

3.04 Vacancies: Any vacancies may be filled or interim appointments may be made by the Board to hold office for the balance of the unexpired term, and will be ratified by the membership at the annual meeting."

3.05 Resignation: A director may resign at any time by delivering written notice to the Chair. Once delivered, a notice of resignation is irrevocable unless revocation is permitted by a majority vote of the Board.

3.06 Removal: A director may be removed for cause by an affirmative vote of three-fifths of the members of the Board of Directors at a special meeting called, noticed, and convened for that purpose. Cause for removal shall include, but shall not be limited to, absence from three (3) consecutive meetings without being excused by the Chair, or a breach of a director's fiduciary duties to the corporation.

3.07 Meetings: An annual meeting of the Board shall be held during the second quarter of each year at a location within the State of Idaho at a date and time to be determined by the Board. The Board shall permit any or all of the directors to participate in regular or special meetings by the use of any means of communication by which all directors

participating may simultaneously hear each other during the meeting. A director participating in a meeting by this means is deemed to be present in person at the meeting.

3.08 Action without Meeting: An action required or permitted to be taken at a Board meeting may be taken without a meeting if the action is taken by all members of the Board. The action taken shall be evidenced by written consent describing the action taken, signed by each director, and included in the minutes or filed with the corporate records reflecting the action taken. Action taken under this section is effective when the last director signs the consent, unless the consent specifies an effective date. A consent under this section has the effect of a meeting vote and will be described as such in any document.

3.09 Notice of Meetings: The Board shall notify directors by registered mail - electronic or postal - of the place, date, and time of each meeting of directors no fewer than ten (10) nor more than sixty (60) days before the meeting date. Notice of the annual meeting shall include a description of any matters that will be brought before the members during the meeting. Regular or special meetings of the Board will be established by the Board. Regular meetings of the Board may be held without notice, and special meetings of the Board shall require at least two (2) days' notice to each director of the date, time, and place, but not the purpose, of the meeting.

3.10 Quorum: A quorum of the Board shall consist of the majority of voting directors immediately before the meeting begins. Except as provided in the Bylaws, the Board shall establish its own rules and procedures. Official Board action shall require the majority vote of directors present at a meeting at which there is a quorum.

3.12 Compensation: Board members may receive reimbursement of expenses in accordance with policies adopted by the Board. Board members shall not be compensated otherwise for their board services.

SECTION 4
COMMITTEES

4.01 Board Committees: The Board can create and empower committees to implement the Idaho Health Data Exchange programs and policies, including but not limited to the Executive Committee, each of which shall consist of at least two (2) directors:

Executive Committee: is to assist the Board of Directors in the management of the Company.

SECTION 5
OFFICERS

5.01 Board Officers: Officers shall be elected by the Board annually.

Chair: The Chair shall call and preside at meetings of the Board, shall assure Board members are advised of all significant matters of the Corporation, shall have the powers and duties ordinarily exercised by the Chair of a nonprofit corporation, and shall have such other powers and duties as may be prescribed by the Board or the Bylaws.

Vice Chair: The Vice Chair shall perform such duties as the Board may prescribe. In the absence or disability of the Chair, the duties and powers of the Chair shall be performed and exercised by the Vice Chair. The Vice Chair will have such other powers and perform other duties as may be prescribed by the Board or these Bylaws.

Secretary: The Secretary shall maintain the corporate records in a manner and place prescribed by the Board. The Secretary shall ensure that the minutes of Board meetings are prepared and maintained in a form approved by the Board. The Secretary will give or cause to be given such notice of the meetings of the Board as is required by these Bylaws. The Secretary will have such other powers and perform other duties as may be prescribed by the Board or these Bylaws.

Treasurer: The Treasurer, as the Chief Financial Officer of the Corporation, shall cause to be kept records of accounts of transactions associated with the operations of the Corporation. The Treasurer shall ensure that all funds and other valuables held in the name of and to the credit of the Corporation are deposited with such depositories as may be designated by the Board and that funds are disbursed according to a budget and decisions approved by the Board. The Treasurer will have such other powers and perform other duties as may be prescribed by the Board or these Bylaws.

SECTION 6
GENERAL PROVISIONS

6.01 Books and Records: The Corporation will maintain all records required by law. All such records will be kept at its principal office, registered office, or at any other place designated by the Board, or as otherwise provided by applicable law. The records of the Corporation will be open to inspection by the directors or the directors' agents in the manner and to the extent required by applicable law. The Corporation shall make available on an annual basis a signed opinion of an independent certified public accountant stating that the Corporation's accounts and fiscal practices conforms with generally accepted accounting principles.

6.02 Checks, Drafts, and Other Financial Instruments: All checks, drafts, and other orders for payment of money, notes, or other evidence of indebtedness issued in the name of or payable to the Corporation shall be signed or endorsed by such person or persons and in such a manner as shall be determined by an action of the Board. Any

disbursements by the Corporation shall be signed by the Chair, the Treasurer or another board member as designated by an action of the board.

6.03 Execution of Documents: The Board may authorize any officer to enter into a contract or execute an instrument in the name of and on behalf of the Corporation. Such authority may be general or confined to specific instances. Unless so authorized by the Board, no officer or director shall have any power or authority to bind the Corporation by any contract or pledge its credit, or to render it liable for any purpose or for any amount.

6.04 Calendar Year: The Corporation shall operate on a calendar year that begins on the first day of January and ends on the last day of December of each year.

6.05 Amending Bylaws: These Bylaws may be amended or repealed, and new Bylaws adopted, by the Board of Directors by an affirmative vote of two-thirds of the directors then in office. Any amendments or new Articles adopted by the Board of Directors shall not change the purpose and intent of the corporation. Amendments to these Bylaws must be proposed in one meeting and acted on in a subsequent Board meeting that occurs no sooner than fifteen (15) working days after the meeting in which an amendment is proposed. Each director shall be given at least ten (10) days notice of the place, date, and time of the meetings at which a proposed amendment will be considered. The notice shall state that one of the purposes of the meeting is to consider a proposed amendment to the Bylaws and shall contain a copy of any proposed amendments.

SECTION 7
CONFLICTS OF INTEREST

7.01 Conflict of Interest: A conflict of interest may occur when a duality of commitments exists. Disclosure of such actual or potential conflicts of interest prior to the process of choice is essential and must be disclosed.

7.02 Participation: If a director declares a conflict of interest, he or she must announce the nature of the actual or potential conflict. The Board will determine if the conflict is actual or potential. If the conflict is actual, the affected director must not participate as a board member in the discussion or debate, and must not vote on the issue out of which the actual conflict arises.

7.03: Exception: If a conflict of interest occurs, the director must excuse himself from participating in the process of choice unless the Board believes the services rendered are of such benefit to and in the general interest of the public, that an exception may be granted by a majority vote of the Board.

SECTION 8
INDEMNIFICATION

8.01 Directors and Officers: The Corporation shall indemnify to the fullest extent permitted by the Idaho Nonprofit Corporation Act and the Corporation's Articles of Incorporation any person who is made, or threatened to be made, a party to an action suit, or proceeding, whether civil, criminal, administrative, investigative, or otherwise (including an action suit) or proceeding by or in the right of the corporation, by reason of the fact that the person is or was a director or officer of the corporation.

8.02 Employees and Other Agents: The Corporation may indemnify its employees and other agents to the fullest extent permitted by law.

8.03 Insurance: The Corporation shall purchase and maintain insurance on behalf of an individual against liability asserted against or incurred by the individual who is a director or officer of the Corporation with regard to matters pertaining to the business of the corporation; provided, however, that the Corporation may not purchase or maintain such insurance to indemnify a director or officer of the Corporation in connection with any proceeding charging improper personal benefit to the director or officer, in which the director or officer was adjudged liable on the basis that personal benefit was improperly received by director or officer.

8.04 Nonexclusivity of Rights: The rights conferred on any person by this Section will be in addition to any rights to which a person may otherwise be entitled under any articles of incorporation, bylaws, agreement, statute, policy of insurance, vote of Board of Directors or otherwise.

8.05 Survival of Rights: The rights conferred on any person by this Section will continue as to a person who has ceased to be a director, officer, employee or agent of the Corporation; and will inure to the benefit of the heirs, executors and administrators of such person.

8.06 Amendments: Any repeal of this Section will be prospective only and no repeal or modification of this Section will adversely affect any right or protection that is based upon this Section and pertains to an act or omission that occurred prior to the time of such repeal or modification.

CERTIFICATE OF SECRETARY

The undersigned is the Corporate Secretary of the Corporation and hereby certifies that these Bylaws were adopted by the Board of Directors of the Corporation, and that the foregoing is a complete, true and correct copy of the Corporation's Bylaws.

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Adoption date here

Corporate Secretary